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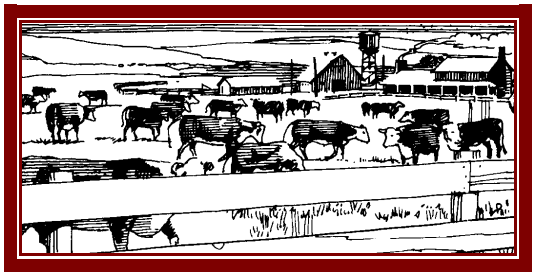

Evaluating Growth & Maternal Traits of Beef Cattle

Nyle J. Matthews
Extension Area Livestock Specialist

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For many years we evaluated cattle only on the basis of visual appraisal. Some people had a very good eye for cattle, but at best, eyeball evaluation was guess work. Many important traits, such as soundness, still require visual assessment.

TRAIT RATIOS

When performance testing came along, it increased our ability to measure some of the economic traits of cattle. Growth traits were measured in terms of weight gain over time and were expressed as a ratio to the herd average. For example, when interpreting ratios the herd average is always 100, then a weaning weight ratio of 110 would mean that calf had an adjusted weaning weight 10% over average in that herd. Likewise, one with a ratio of 90 would be 10% below average. Trait ratios are only comparable within a herd where animals are managed alike.

WORKING WITH EPDs

Animal scientists now have more exact ways of reporting differences in production traits. They are called Estimated Progeny Differences (EPDs). Unlike ratios, they are reported in terms of the unit of measurement of that trait and are compared according to breed population as reported to the Association. Birth weight, weaning weight and yearling weight EPDs are all reported in pounds and calculations are made estimating the production an animal will pass to his offspring, compared to the average sire for the breed. A birth weight EPD of -5 means that the animal would reduce the birth weight of his calves by 5 pounds if mated to cows average in the breed for that trait. A bull with a weaning weight EPD of +15 would add 15 pounds to his calves at weaning if they were out of average cows. EPDs for milk estimate the amount of weaning weight that is attributed to the mother's milk, or could be passed on to a bull's daughters.

Birth weight, weaning weight and yearling weight are all highly correlated. We are looking for sires that will produce calves with a low birth weight, but increase the yearling and weaning weights. These bulls are as rare as diamonds, but are available in certain herds and AI studs and can only be identified commercially with the use of accurate performance records.

The accuracy (Acc) of the EPD estimate is also listed. This number is listed as a decimal value between 0 and 1 and is based on the number of relatives sampled to predict the trait EPD. As the number of records increase, the accuracy of the EPD also increases. Numbers closer to 1

would indicate more confidence in the EPD.

The following table contains the record of three bulls from the Angus Sire Summary and shows how EPDs are generally listed on performance reports or pedigrees.

Bull No.	Birth Weight		Weaning Weight		Maternal Milk		Yearling Weight	
	EPD	ACC	EPD	ACC	EPD	ACC	EPD	ACC
1	-1.2	.68	-1.1	.88	-3.9	.81	-3.7	.78
2	-1.6	.86	+15.6	.84	+16	.59	+33.5	.75
3	+8.6	.88	+34.6	.87	-7.9	.62	+52.9	.71

Bull number 1 would help keep birth weights down, but has nothing to offer in the production traits of weaning weight and yearling weight. Bull number 2 is one of those rare bulls that would pass on small birth weights and good weight gain and milk production potential. Bull number 3 probably is best suited to produce terminal offspring from mature cows because of the increase in birth, weaning and yearling weight EPDs with a decrease in milk production. The +8.6 pounds increase in birth weight may pose a higher calving difficulty risk than some producers may want to assume.

Because growth traits are highly heritable, EPDs can be of tremendous value in selecting breeding stock and setting up a herd breeding program. When applying a bull's EPDs to your breeding program or deciding the influence he would have in your herd, one must consider the cows that he is to be mated with. Heifers with a high potential for calving difficulty may produce a different result than average heifers for that trait. We must also remember that feed, management and environment make a sizable contribution to animal growth.

The manager's major objective is to balance size and milk potential to the food resource and management system. EPDs are helpful for reducing size and milk production where these traits are expressed at too high a level for the resources, as well as to increase size and milk production where these traits are expressed at levels too low for the available resources. Effectively using EPDs is the most powerful method available for bringing about genetic change in production pf beef cattle.

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